

generating the first tagged machine pointer as a sum including the tagged numeric reference and the second tagged machine pointer.

2. (Not Amended) The method of claim 1, wherein the sum further includes a predetermined constant.

3. (Once Amended) The method of claim 1, wherein the tagged numeric reference includes a tag portion that indicates whether the first object and the second object have a same or a different contiguity.

4. (Not Amended) The method of claim 3, wherein:

the tag portion includes bits of the first tagged numeric reference that are less significant than bits used for an offset portion; and

the tag portion contains one of at least a first tag value indicating that the first object is contiguous and a second value indicating that the second object is non-contiguous, wherein a difference of the first value and the second value is congruent to 2^{N-1} modulo 2^N .

5. (Once Amended) A method of managing memory, comprising the computer-implemented steps of:

storing a plurality of objects in a memory; and

storing references between the objects in the memory as numeric references that encodes locations of referenced objects as offsets from objects that reference the referenced objects.

6. (Not Amended) The method of claim 5, further comprising the step of calculating a pointer difference between a first machine pointer to a first object and a second machine pointer to a second object to produce a self-relative numeric reference.

7. (Not Amended) The method of claim 5, wherein the step of calculating a pointer difference between a first machine pointer to a first object and a second machine pointer to a second object to produce a self-relative numeric reference includes the step of calculating the pointer difference between a first tagged machine pointer to the first object and a second tagged machine pointer to the second object to produce a tagged self-relative numeric reference.

8. (Not Amended) The method of claim 7, wherein the pointer difference further includes a predetermined constant.

9. (Not Amended) The method of claim 7, wherein a tag portion of the self-relative numeric reference indicates whether the first object and the second object have a same or different contiguity.

10. (Not Amended) The method of claim 9, wherein:

the tag portion includes bits of the tagged self-relative numeric reference that are less significant than bits used for an offset portion; and

the tag portion contains one of at least a first tag value indicating that the first object is contiguous and a second value indicating that the second object is non-contiguous, wherein a difference of the first value and the second value is congruent to 2^{N-1} modulo 2^N .

11. (Once Amended) A computer-readable medium bearing instructions for generating a first tagged machine pointer to a first object referenced by a second object, said instructions arranged, when executed, to cause one or more processors to perform the steps of:

fetching a tagged numeric reference stored within the second object based on a second tagged machine pointer that points to the second object; and
generating the first tagged machine pointer as a sum including the tagged numeric reference and the second tagged machine pointer.

12. (Not Amended) The computer-readable medium of claim 11, wherein the sum further includes a predetermined constant.

13. (Once Amended) The computer-readable medium of claim 11, wherein the tagged numeric reference includes a tag portion that indicates whether the first object and the second object have a same or a different contiguity.

14. (Once Amended) The computer-readable medium of claim 13, wherein:

the tag portion includes bits of the first tagged numeric reference that are less significant than bits used for an offset portion; and

the tag portion contains one of at least a first tag value indicating that the first object is contiguous and a second value indicating that the second object is non-contiguous, wherein a difference of the first value and the second value is congruent to 2^{N-1} modulo 2^N .

15. (Once Amended) A computer-readable medium bearing instructions for managing memory, said instructions arranged, when executed, to cause one or more processors to perform the steps of:

storing a plurality of objects in a memory; and

storing references between the objects in the memory as numeric references that encodes locations of referenced objects as offsets from objects that reference the referenced objects.

16. (Not Amended) The computer-readable medium of claim 15, said instructions further arranged to cause said one or more processors to perform the step of calculating a pointer difference between a first machine pointer to a first object and a second machine pointer to a second object to produce a self-relative numeric reference.

17. (Not Amended) The computer-readable medium of claim 15, wherein the step of calculating a pointer difference between a first machine pointer to a first object and a second machine pointer to a second object to produce a self-relative numeric reference includes the step of calculating the pointer difference between a first tagged machine pointer to the first object and a second tagged machine pointer to the second object to produce a tagged self-relative numeric reference.

18. (Not Amended) The computer-readable medium of claim 17, wherein the pointer difference further includes a predetermined constant.